

REMARKS/ARGUMENTS

Claims 1-5 and 7-19 are pending. The claims have been revised for clarity. The revision of claim 2 finds support at paragraph [0014]. The time period specified in claims 4 and 13 is disclosed at the last line on page 9 of the specification. New claims 10-18 find support in the original claims and specification. Claim 19 finds support at paragraphs [0010] and [0012] of the specification. The Applicants do not believe that any new matter has been introduced. Favorable consideration of this amendment and the remarks below and allowance of this case are respectfully requested.

The Applicants thank Examiner Tsay and her supervisor for the courteous and helpful interview of October 28, 2008. Ways to avoid the objections and indefiniteness rejections were discussed. The data in the tables in the specification were discussed. The Applicants pointed out that Table 2 shows the effects of varying the water content and that selection of a water content between 20 and 80% provided superior decomposition of keratin raw material. Limitation of the claims to a process involving peroxide treatment was discussed.

Objection

Claims 4-9 were objected to as being in improper multiple dependent form. This issue is moot in view of the amendments above removing multiple dependencies.

Rejection—35 U.S.C. §112, second paragraph

Claims 1-3 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. This rejection is moot in view of the amendments above.

Rejection—35 U.S.C. §103(a)

Claims 1-3 were rejected under 35 U.S.C. §103(a) as being unpatentable over Shiojima, et al., U.S. Patent No. 6,066,316. The Applicants respectfully traverse this rejection because Shiojima admittedly does not explicitly “teach a hydrous state of 20 to 80% or an alkali concentration of 0.1 to 0.5 m/l” (OA, top of page 4).

Independent claim 1 requires “hydrolyzing in an alkali solution a keratin raw material having a water content ranging from 20 to 80% by weight”. On the other hand, col. 28 of Shiojima cited at the top of page 4 of the Official Action (“OA”) describes (I) wool fiber soaked in 300 g of 1% sodium hydrogen sulfite adjusted to pH 6.7 with 5N caustic soda (lines 5-7); (II) 10 g of a wool fiber soaked in 300 g of 75% phosphoric acid (lines 18-20); (III) A porous expanded material obtained by heating feathers in superheated steam; and (IV) 100 g of a grind of horse’s hoof degreased in 50% methanol/50% chloroform. As apparent from (I) to (IV) above Shiojima does not disclose hydrolyzing keratin raw material having 20-80% water content in alkali as required by the invention and cannot recognize the benefits of such a process.

Moreover, assuming *arguendo* that Shiojima discloses alkali treatment of hydrated feathers, e.g., in (I) above, it does not provide a reasonable expectation of success for the superior results achieved by selection of a hydrous state for the keratin raw material ranging from 20 to 80% as shown in Table 2 on page 18 of the specification (reproduced below):

[0041]

[Table 2]

Water content (%)	12	20	30	40	50	60	70	80
Decomposition rate (%)	47.5	76.1	79.5	77.5	75.6	78.0	80.0	73.3

As shown above, selection of a water content between 20 and 80% provides a superior decomposition rate compared to a lower water content of 12%.

Furthermore, the keratin produced according to the invention had significantly improved properties, such as decreased undesirable odor as shown by Table 4 on page 19 of the specification (reproduced below):

[0045]

[Table 4]

	Product 6 is superior	Promois WK is superior	Undecided
Color	2	2	16
Smell	12	3	5

[0046]

As clear from the results in Table 4, most panelists smelled less in the solution of the product of the invention (Product 6) as compared with the comparative solution (Promois WK). That is, the solubilized keratin obtained by the method of the invention is substantially decreased in smell as compared with solubilized keratin prepared by conventional process.

Moreover, the tensile strength of hair treated with the keratin produced according to the invention (Product 6) was superior to that of the control (Promois WK) as shown by Table 6 (reproduced below):

[0050]

[Table 6]

	Untreated hair	Bleached hair	Bleached hair + water	Bleached hair + feather keratin (invention)	Bleached hair + wool keratin
Kgf/mm <sup>2</sup>	35.95	31.32	30.18	39.18	36.56

The prior art does not disclose or suggest the importance of the process steps of the invention and does not provide a reasonable expectation of success for the superior keratin extraction and keratin compositions made by this process.

The Applicants have also conducted additional studies illustrating the benefits provided by the invention. As shown by the table reproduced from the attached Declaration, keratin raw material (feathers) hydrated to 50% had a significantly higher decomposition rate than identical features hydrated to 10%.

Table I

Water content (%)	Reaction time (hours)	Decompositon rate (%)
10	6	50.7
10	18	50.3
50	6	79.8
50	18	93.3


The prior art provides no motivation for hydrating the keratin raw material, such as feathers, to a degree of 20-80% as required by the invention, and cannot provide a reasonable expectation of success for the superior decomposition attained. Accordingly, this rejection cannot be sustained.

Conclusion

This application presents allowable subject matter and the Examiner is respectfully requested to pass it to issue. The Examiner is kindly invited to contact the undersigned should a further discussion of the issues or claims be helpful.

Respectfully submitted,

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